

## Cold Challenges

- Impacts of extreme environmental conditions on maneuver support materiel, tactics, and procedures
- Ability to operate equipment
- Dynamic snow, ice, and frozen ground interactions with vehicles
- Sustainment of operations
- Transportation and force projection over complex and remote terrain

## CRREL MSS Programs

- Manned and unmanned vehicle mobility
- Force projection
- Maneuver support
- Logistics for austere, remote sites

## CRREL MSS Facilities and Equipment

- Frost Effects Research Facility
- Materiel Evaluation Facility
- Mobility Laboratory
- CRREL Instrumented Vehicle
- Comprehensive Geotechnical Labs



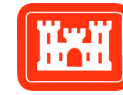
The Cold Regions Research and Engineering Laboratory (CRREL) in Hanover, New Hampshire, and Fairbanks and Anchorage, Alaska, is part of the US Army Corps of Engineers Engineer Research and Development Center (ERDC). Our mission is to solve interdisciplinary, strategically important problems of the US Army Corps of Engineers, Army, Department of Defense, and the Nation by advancing and applying science and engineering to complex environments, materials, and processes in all seasons and climates, with unique core competencies related to the Earth's cold regions.

## CRREL's Maneuver Support and Sustainment Mission

Combine research and engineering practice to develop innovative solutions for challenging maneuver and support problems in temperate/extreme conditions and/or in remote locations.

## Contact

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## Cold Regions Research and Engineering Laboratory

## Maneuver Support and Sustainment (MSS)



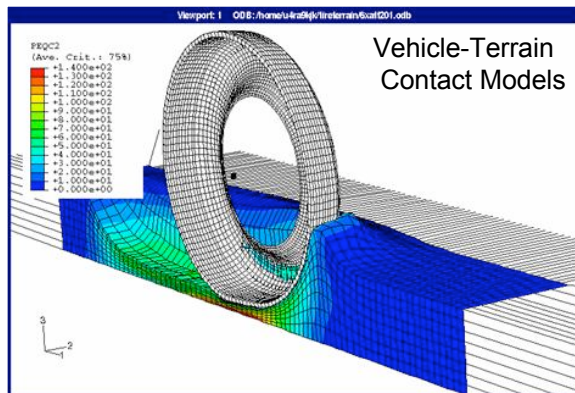
Stryker Brigade Training, Alaska

- All-Terrain/All-Season Vehicle Mobility
- Force Projection Airfields : Remote and Austere Environments
- Sustaining Operations in Remote, Extremely Cold

## World Class Maneuver Support Research

### All-terrain/All-season Vehicle Mobility

- Analysis of vehicle-terrain interactions
- Real-time vehicle simulations
- Characterization and improvement of materials and engineered systems for all-season maneuver support
- Development of models for all-season terrain mechanics
- Modeling and simulation of manned and unmanned vehicle performance
- Terrain analysis and speed maps for military operations
- Studies of cold effects on manned and robotic vehicle operations
- Development of winter algorithms for NATO Reference Mobility Model
- Studies of environmental impact and rutting on military training lands



### Force Projection Airfields in Remote and Austere Environments

- Application of engineering principles for force projection and operations sustainment in austere environments
- Analysis of helicopter icing and operations in blowing snow or dust
- Application of manned and unmanned vehicle concepts for austere environments
- Upgrading of standards for C-17 operations on unimproved and unpaved runways
- Remote assessment of landing sites for aircraft, helicopters, and UAVs



### Sustaining Operations Remote, Extremely Cold Regions

- Research to improve the Army's ability to conduct operations in extreme climates and remote locations
- Determination of operational and logistic needs for challenging environments
- Arctic and Antarctic operation and logistics support
- Development of advanced over-snow towing concepts for Antarctic heavy logistics
- Identification and mitigation of crevasse hazards in the McMurdo Shear Zone
- Engineering of Antarctic snow and runways for enhanced logistics
- Improved site planning for Arctic and Antarctic disturbance analyses

